Annexure - ' F '

	Science (086), Class X				
	Summative Assessment-II				
	SECOND TERM				
	CLASS X				
Second Term		**Marks : 90**			
Units			**Marks**		
I.	Chemical Substances -Nature and Behaviour		23		
II.	World of living		30		
III.	Natural Phenomena		29		
IV	Natural Resources		08		
	CLASS X	**Total**	**90**		

The question paper will include value based question(s) to the extent of 3-5 marks.

    II.   World of living   30

Theme : Materials   **(25 Periods)**

Unit : Chemical Substances - Nature and Behaviour

Carbon compounds : Covalent bonding in carbon compounds. Versatile nature of carbon.

Homologous seriesNomenclature of carbon compounds containing functional groups (halogens, alcohol, ketones, aldehydes, alkanes and alkynes), difference between saturated hydrocarbons and unsaturated hydrocarbons. Chemical properties of carbon compounds (combustion, oxidation, addition and substitution reaction). Ethanol and Ethanoic acid (only properties and uses), soaps and detergents.

Periodic classification of elements : Need for classification, Modern Periodic table, gradation in Properties,valency, Atomic number, metallic and non-metallic properties.

Theme : The world of The Living (30 Periods) Unit : World of living

Reproduction : Reproduction in animal and plants (asexual and sexual) reproductive health-need for and methodsof family planning. safe sex vs HIV/AIDS. Child bearing and women's health.

Heridity and evolution : Heredity; Mendel's contribution- Laws for inheritance of traits: Sex determination: briefintroduction; Basic concepts of evolution.

Theme : Natural Phenomena   (23 Periods)

Unit : Reflection of light at curved surfaces, Images formed by spherical mirrors, centre of curvature, principal axis,principal focus, focal length. Mirror Formula (Derivation not required), Magnification.

Refraction; laws of refraction, refractive index.

Refraction of light by spherical lens, Image formed by spherical lenses, Lens formula (Derivation not required), Magnification. Power of a lens; Functioning of a lens in human eye, defects of vision and their corrections, applications of spherical mirrors and lenses.

Refraction of light through a prism, dispersion of light, scattering of light, applications in daily life.

Theme : Natural Resources   (12 Periods)

Unit : Conservation of natural resources

Management of natural resources. Conservation and judicious use of natural resources. Forest and

wild life, coal and petroleum conservation. Examples of People's participation for conservation of natural resources.

The Regional environment : Big dams : advantages and limitations; alternatives if any. Water harvesting. Sustainabilityof natural resources.

Our environment : Eco-system, Environmental problems, Ozone depletion, waste production and their solutions.Biodegradable and non-biodegradable, substances.

PRACTICALS

Practical should be conducted alongside the concepts taught in theory classes

SECOND TERM

1. To study the following properties of acetic acid (ethanoic acid) :
i) odour
ii) solubility in water
iii) effect on litmus
iv) reaction with sodium bicarbonate

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2. To study saponification reaction for preparation of soap.
3. To study the comparative cleaning capacity of a sample of soap in soft and hard water.
4. To determine the focal length of
i. Concave mirror
ii. Convex lens

    by obtaining the image of a distant object.
5. To trace the path of a ray of light passing through a rectangular glass slab for different angles of incidence. Measure the angle of incidence, angle of refraction, angle of emergence and interpret the result.
6. To study (a) binary fission in Amoeba and (b) budding in yeast with the help of prepared slides.
7. To trace the path of the rays of light through a glass prism.
8. To draw the images of an object formed by a convex lens when placed at various positions.
9. To study homology and analogy with the help of preserved / available specimens of either animals or plants.
10. To identify the different parts of an embryo of a dicot seed (Pea, gram or red kidney bean).

RECOMMENDED BOOKS :

Science - Textbook for class IX - NCERT Publication

Science - Textbook for class X - NCERT Publication

Assessment of Practical Skills in Science - Class IX - CBSE Publication

Assessment of Practical Skills in Science - Class X - CBSE Publication

Laboratory Manual Science - Class IX , NCERT Publication

Laboratory Manual Science - Class X, NCERT Publication

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		Design of Question Paper		
		Science (086),		
		Summative Assessment-II		
		Class X		
		WEIGHTAGE		
S. No.	Name of the unit	Chapter name		Weightage
1.	Chemical substances Nature and Behaviour	i)	Carbon Compounds	23
		ii)	Periodic classification of	
			elements	

2.	World of Living	i) How do organisms reproduce	30
		ii) Heredity and evolution	
3.	Nature Phenomena	i) Light - reflection and refraction	29
		ii) Human eye and the colourful world	
4.	Natural resources	i) Our environment	8
		ii) Management of Natural resources	

The question paper will include value based question(s) to the extent of 3-5 marks.

Types of questions	Marks per question	Total no of questions	Total marks
MCQ	1	18	18
VSA	1	3	3
SA (I)	2	4	8
SA (II)	3	12	36
LA	5	5	25
Total		42	90

Sample Questions
Science (086),
Summative Assessment-II

MCQ

Que. 1 Acetic acid was added to four test tubes containing the following

chemicals:

a. Sodium carbonate
b. Blue litmus solution
c. Lime water
d. Distilled water

Which amongst these is/ are correct option(s) for carrying out a characteristic test for identification of a carboxylic acid (acetic acid) in the laboratory?

1. (a) only
2. (c) only
3. (a) and (b)
4. (c) and (d)

Que. 2 In an experiment the image of a distant object formed by a concave mirror is obtained on a screen. To determine the focal length of the mirror, you need to measure the distance between :
   a) Mirror and the screen
   b) Mirror and the object
   c) Object and the screen
   d) All the above

Que. 3 A student observed a focussed slide of a stage of binary fission in Amoeba

under a microscope as seen below:

Which of the following is most appropriate statement with respect to the observation-

a)   preliminary stage

b)   intermediate stage where the nucleus is divided and cytoplasm is not

c)   intermediate stage where the cytoplasm is divided and nucleus is not

d)   final stage

Que. 4 A student while observing the properties of acetic acid would report thatthis acid smells like

(i)   vinegar and turns red litmus blue

(ii)   rotten egg and turns red litmus blue

(iii)   vinegar and turns blue litmus red

(iv)   rotten egg and turns blue litmus red

VSA

Que. 5   Give one example of a unisexual flower and one example of bisexual flower.

Que. 6   Draw the electron dot structure of the gas molecule which is liberatedwhen sodium hydrogen carbonate is treated with aqueous hydrochloric acid solution.

Que. 7   Find the period and group of the element whose atomic number is 20.

Que. 8 Refractive index of two material medium X and Y are 1.3 and 1.5respectively. In which of the two, the light would travel slower?

Que. 9   Write in one word or at the most in one sentence about the following

(i)   Mirrors used in search lights.

(ii)   The smallest distance, at which the eye can see objects clearly without strain.

	SA I		
Que. 10	List two differences between homologous and analogous organs.		
Que. 11	State how would you distinguish between Acetic acid and Ethanol in your		
	laboratory. Give chemical equation of the reactions shown by them.		
	Write the chemical equations involved.		
Que. 12	Complete the reaction(s) given below and classify them as Combustion /		
	Oxidation / Addition / Substitution reaction.		
	(i)	$CH_3\ CH_2\ CH_2$ OH	$\underline{alk.KMn04} \rightarrow$
			Heat
	(ii)	$C_2\ H_4\ +$ H_2	Ni catalyst
Que. 13	Explain why?		

(i)   'Danger' signal are red in colour.

(ii)   Convex mirrors are commonly used as rear – view mirrors.

Que. 14   Study the ray diagram given below and answer the following questions -

Ray Diagram   convex lens   object between C and F

(i)   State the type of lens used in the figure.
(ii)   List two properties of the image formed.
(iii)   In which position of the object will the magnification be -1?
(iv)   Find the power of the convex lens whose focal length is 40 cm.

Que. 15 What is meant by power of accommodation of the eye? How is it relatedto the focal length of the eye lens?

SA II

Que. 16 What are fossils? What do they tell us about the process of evolution?

Que. 17 How is the sex of the child determined in human beings? Explain and draw the flowchart.

Que. 18 Two elements with symbol X (atomic no. 11) and Y (atomic no. 13) areplaced in the III period of the modern periodic table -

(i)   Which amongst the two has less metallic character?

(ii)   Calculate the valency of each element.

(iii)   Element 'X' is bigger than 'Y' in terms of atomic size. Is the statement true, justify?

LA

Que. 19   a) Identify the parts the 1, 2, 3 and 4 of the diagram given below.

b) List two changes that can be observed in the flower after fertilization.

Diagram of fertilization in plants   parts to be labeled
a) Pollen grain
b) Pollen tube
c) Ovary
d) Egg (Ovum)

Que. 20   a) Complete the following reactions / chemical equations and name the main product formed in each case-

(i) CH_3COOH + C_2H_5OH acid

(ii) C_2H_5OH $\underline{conc.\ H_2SO_4}$ (3)
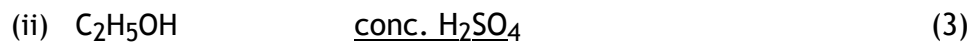
Heat(443 K)

Also state the importance of conc. H_2SO_4 in this reaction.

b) List two reasons why carbon forms large number of compounds and are poor conductors of electricity? (2)

Que. 21 a) 5.0 cm tall object is placed perpendicular to the principal axis of aconcave mirror of focal length 10 cm. The distance of the object from the mirror is 15 cm. What is the image distance?
b) Find the nature, position and size of the image formed.
c) Represent the situation with the help of a ray diagram.

MARKING SCHEME

		MCQ		
Que. 1	(3)			1
Que. 2	(a)			1
Que. 3	(b)			1
Que. 4	(i)			1
		VSA		
Que. 5	Unisexual: Watermelon / Papaya/ Cucurbita Bisexual :hibiscus/pea/mustard/or any other			1
Que. 6	Carbon dioxide gas O::C::O			1
Que. 7	4th period, 2nd group			1
Que. 8	In medium 'Y' because of higher value of refractive index			1
Que. 9	(i)	(ii)	Near point	1

Que.10   Any two differences between homologous and analogous organs.   1+1

Que.11   Activity
Take sodium carbonate in two test tubes.

Mark them as 1 and 2.

Pour some amount of acetic acid in test tube 1 and ethanol in 2.

Effervescence produced in test tube 1 confirms production of gas which can not be found in test tube 2.

Conclude that the reaction is taking place in with acetic acid and not with ethanol.

	$2CH_3COOH + Na_2CO_3$	$2CH_3COONa + H_2O + CO_2$	1
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	$C_2H_5OH + Na_2CO_3$	No reaction	1
Que. 12	(i) CH_3CH_2COOH, Oxidation	(ii)C_2H_6, Addition	2
Que. 13	(i) Does not scatter – red light intense		2
	(ii) Wider view		
Que. 14	(i) Convex lens		1/2
	(ii) Real, inverted, enlarged (any two)		½ + ½
	(iii) When object is at 2F		½
	(iv) Formula, values placed correctly , answer		½ + ½ + ½
Que. 15	The ability of the eye to adjust its focal length.		1
	Change in curvature of the eye lens can thus change its		1
	Focal length, muscle relaxed, eye lens becomes thin or thick which helps		
	to see objects clearly.		
		SA II	
Que. 16	Definition, Any two points		1+2
	Two ways of determining age of fossils		3
	Relative – fossils closer to the surface are more recent		1
	Dating – finding the ratio of different isotopes		1

Que. 17   Explanation, flow chart   2+1

Que. 18   i) Y

(ii) 2 each

(iii) True, because atomic size decreases in a period from left to right due to increased nuclear force.

LA

Que. 19   a)   1) Pollen grain   5

2)   Pollen tube

3)   Ovary

                        4) Female germ cell   ½ x 4

b)   Ovule changes into seed, ovary ripens and makes fruit, petals, sepals,

        Stamens, style shrivel and fall off   3

Que. 20 (a)   (i) $CH_3COOC_2H_5$ (Ethyl Ethanoate)   (1+1)

        (ii) CH_3COOH (Ethanoic acid), conc. $H2SO4$ absorbs water produced in
                the reaction which may otherwise reverse the reaction (1)

        (b)   Catenation, covalent compounds   (1+1)

Que. 21	$(1/v) + (1/u) = (1/f)$, u=-15cm, f=-10cm					
	$(1/f) - (1/u) = (1/v)$					
	1		1			1
	----	-	-----	=	- ---	= V = -30 cm
	-10		-15			30

a) u=-15cm, f=-10cm y=?   ½ + ½ + ½
(1/v) + (1/u) = (1/f) ,
                    1/v + 1/-15 = 1/-10
                    y= -30 cm
b) Real , Inverted , diminished between C and F   ½ + ½ + ½
c) Ray Diagram   2

Value Based Questions
Science (086),
Summative Assessment-II
Class X – (2012-13)

Question:

Ethanol, commonly called as alcohol is an excellent solvent, is used in medicines and is an important chemical compound involved in synthesis of many chemical compounds. However in spite of its benefits to man, its impact on social behaviour has always been questioned. Media has often show abnormal behaviour of people while drunk. It is considered as a curse in the lives of those who are addicted to alcohol – 'Alcoholic' people are not only lowering their metabolism and affecting Central Nervous System, they are also a threat to the lives of others. Anger and rude behaviour are some of its ill effects.

(i)	Comment on the statement – 'Should production of	alcohol should be banned',
	give three valid reasons to justify.	
(ii)	As a student what initiative would you take in the	common concern of 'Save
	Life, Do not Drink'. Give two suggestions.	

Answer:

In favour of negative response: (3)

(i)   regulate production and supply
(ii)   it is used in so many ways for medicines, ornamentation
(iii)   it is used as disinfectant

In Favour of positive response:

(i)   cause of death of many people
(ii)   many adolescents get affected out of it and become addict
(iii)   is being misused even where it is of important use (for example, painting shops, industries)

Initiatives: (2)

Drive to make aware
Skit / Role plays / drama
Article writing
Chart preparation
Slogan writing

Question:

'Priya and Saina' are best friends and study in grade 4, recently, Priya has been facing difficulty in reading the black-board text from the last desk. Saina is little uncomfortable and wonders why Priya avoids sitting on the last desk. On observation she found that Priya often carries junk food in her lunch. Saina has started sharing her lunch – full of green vegetables and fruits with her. Priya is now better and has also started taking a 'balanced diet'.

(i)	Name the eye defect Priya is suffering from?	
(ii)	What are the two possible deformities related to her eye	Defect ?
(iii)	What value is shown by Saina and Priya?	

Answers:			
	(i)	Myopia, short sightedness	1
	(ii)	Lens defect (increased thinness), eye ball defect (shortening)	2
	(iii)	Friendship, concern for each other, value and	2
		balanced diet	